

REMARKS

Favorable reconsideration and reexamination of this application is requested in view of the above amendments and the following remarks. Claim 1 is amended. Claim 18 is canceled.

Amendment to claim 1 is supported, at least for example, by Figure 1 and the description that the "supporting member comes into supporting contact with the air bag door when the core is separated from the air bag door" (page 4, lines 11-12).

35 U.S.C. 103 Rejections

Claims 1-3 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nimura et al. (US 5,762,983). Applicants respectfully traverse this rejection.

The rejection states that Nimura et al. teaches supporting members that are rods. Applicants respectfully disagree. The rejection erroneously equates Nimura et al.'s "pushing pins" (reference numeral 14) to the claimed supporting member. The function of the "pushing pins" is to "push the air bag cover from the main body when the mold opens" (Nimura et al., column 1, lines 66-67). Accordingly, the "pushing pins" support the airbag cover only at the moment of removal of the airbag cover (see column 2, lines 20-27). The reference teaches that a different structure supports the airbag cover when the inner core is moved. Specifically, the "bottom end of each of the side walls is held and supported by the main body of the second split mold as the inner core moves outwardly from that support point" (column 2, lines 8-11). Therefore, the "pushing pins" do not support the air bag door when the core is separated from the air bag door as required for the supporting member in claims 1-3.

Furthermore, the reference teaches "pushing pins" to be located on the outer edges of the mold (see Figures 2, 3, 4, and 6, reference numeral 14). Accordingly, even if the "pushing pins" could be considered as generally similar to the supporting member of claims 1-3, the reference fails to teach or suggest that such a supporting member is arranged between the plurality of grooving blades as required in claims 1-3.

A supporting structure taught by Nimura et al. is in fact a "step." The reference teaches that when the inner core moves, the airbag cover is "supported by a step 13b of the mold surface 13a" (column 3, lines 43-44; see also Figures 2, 3, 4, and 6). The "step" meets with 4c of the

airbag cover (see Figures 2, 3, 4 and 6). As it can be seen clearly from Figure 5 of the reference, 4c of the airbag cover forms a substantially rectangular ring which surrounds the outer perimeter of the cavity created by the inner core. Accordingly, the “step” which meets this surface must also be a substantially rectangular ring which surrounds the outer perimeter of the cavity created by the inner core. Therefore, Nimura et al. doesn’t teach or suggest claims 1-3 because the reference teaches a supporting structure which is a step, that is a substantially rectangular ring surrounding the outer perimeter of the mold.

Regarding claim 2, the reference fails to teach or suggest that a supporting structure is a rod extending through the movable core. Nimura et al.’s relevant supporting structure is a step, not a rod. The reference also teaches it is undesirable to have the support for the mold “located at the inner side of the side wall” due to the shrinking of the molding which “grips” with “increased force” (see column 1, lines 43-46). In contrast, claim 2 requires a supporting member which is a rod extending through the movable core.

Regarding claim 3, the rejection also erroneously equates Nimura et al.’s reference numeral 13b to the claimed “recess.” The reference’s 13b, as stated above, is a support structure which keeps the molding from moving inward when the reference’s inner core 15 moves away from the molding. In contrast, the claimed “recess” is a structural character of a movable core (see Figures 2 and 3). Nimura et al. does not teach or suggest providing any structural character of a movable core with a “recess.”

The rejection also states that Nimura et al. teaches a movable core (32) and it can be also considered a supporting member. Applicants respectfully disagree.

Although the reference discloses reference numeral 32 in its Figure 6, there is a complete lack of discussion as to reference numeral 32. The reference fails to teach or suggest that 32 is a supporting member. Figure 6 of the reference suggests that 32 has combined elements of a groove blade and an inner core. Accordingly, even if 32 may be considered to be a supporting structure, the supposed supporting structure is not provided separately from the groove blade. In contrast, claims 1-3 require a supporting member which is provided separately from the plurality of grooving blades. Therefore, Nimura et al. fails to teach or suggest claims 1-3.

Further, it is unlikely that 32 of Nimura et al. is a supporting structure. The reference describes the elements taught in its Figure 6 stating that the “inner core 36 is a rectangular shaped tube” and “has the same effect and function as the inner core 15” (column 4, lines 6-7). Figure 6 also includes the already discussed supporting structure 13b. Accordingly, with support structure 13b included in Figure 6, it is unlikely that 32 has a supporting function because 32 has a groove blade which meets with the groove of the airbag cover. The groove of the airbag cover is a structurally weaker area than the rest of the airbag cover. Accordingly, during the manufacturing process, it is undesirable to put any undue force or pressure at this weaker area of the airbag cover, as this may lead to a higher frequency of breaking of the airbag covers along the groove. Thus, one of ordinary skill in the art would recognize that having a support structure which meets the groove is undesirable. Additionally, if 32, like 36, acts like inner core 15, then 32 would also move to apply a downward pull and not provide any support.

Therefore, the reference fails to teach or suggest that 32 is a supporting member and any inference as to 32 being a support member can be made only upon hindsight in light of the present application.

The rejection states that the plurality of blades is a design choice as opposed to a single groove blade taught by Nimura et al. and thus it would have been obvious for one of ordinary skill in the art to have modified Nimura et al. with multiple grooving blades. Applicants respectfully disagree.

The rejection admits that “Nimura fails to teach the plurality of blades.” The reference teaches only of making a “conventional groove on the back side of the upper wall” (column 2, lines 63-64). The reference fails to recognize, teach, or suggest the following.

An airbag cover with a plurality of grooves has many advantages over an airbag cover with a single groove. At least, for example, the plurality of grooves allow for a quicker deployment of an airbag than an airbag with a single groove. However, in a molding apparatus, making airbag covers with plurality of grooves creates additional challenges over making airbag covers with a single groove. One such challenge, for example, is that with a plurality of grooves, the airbag cover becomes more susceptible to the inward pulling force created by the movement of an inner core. Accordingly, the molding apparatus has a challenge of keeping a newly molded

airbag cover with a plurality of grooves from collapsing inward as a result of suction or inward pulling force created by the movement of an inner core.

Nimura et al.'s apparatus lacks support structures necessary to keep an airbag cover with a plurality of grooves from folding inward upon movement of an inner core. In contrast, claims 1-3 requires support members arranged between the plurality of grooving blades for coming into contact with the air bag door when the core is separated from the air bag door. Accordingly, the plurality of blades and support members arranged between the plurality of grooving blades are more than a design choice requiring substantial modifications to Nimura et al.'s device. Therefore, it is not obvious to one of ordinary skill in the art to have modified Nimura et al.'s device with multiple grooving blades.

The rejection also states that the placement of pushing pins being outside the air bag door region concerns the product and not any specific claimed structural limitation of the claimed apparatus. Applicants respectfully disagree. Claim 1 has been amended to clarify the structural relevance of this element. In any event, as explained above the position of the support member relative to the grooving blades is important to the apparatus itself and cannot be disregarded.

Claims 1-3 should be considered allowable because Nimura et al. fails to teach or suggest required elements of claims 1-3 and also because modification to Nimura et al.'s device to have plurality of grooves is not obvious to one of ordinary skill in the art. A favorable reexamination and reconsideration of claims 1-3 are requested.

Claims 4-10, and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nimura et al. in view of Sorenson (US 4,867,672). Applicants respectfully traverse this rejection.

Applicants do not concede the correctness of the rejection. Claim 18 is canceled.

Claims 4-10 should be considered allowable for at least the same reason as claim 1 from which they depend. Sorenson fails to remedy the deficiencies of Nimura et al. Favorable reexamination and reconsideration of claims 4-10 are requested.

Claims 14-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nimura et al. in view of Kikuchi (US 6,042,363). Applicants respectfully traverse this rejection.

Claims 14-17 should be considered allowable for at least the same reasons as claim 1 from which they depend. Kukuchi fails to remedy the deficiencies of Nimura et al. Favorable reexamination and reconsideration of claims 14-17 are requested.

Allowable Subject Matter

Claims 11-13 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 11-13 should be considered allowable for at least the same reasons as claim 1 from which they depend. Favorable reexamination and reconsideration of claims 11-13 are requested.

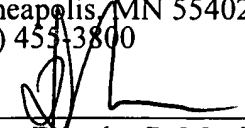
In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance for claims 1-17. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3800.



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Respectfully submitted,

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